

## **REMARKS**

In the Office Action dated November 28, 2007, the drawings were objected to because of the use of the word "Yes," in Figure 9. The paragraph in the specification referring to Figure 9 has been editorially revised, making the use of this word unnecessary in Figure 9, and accordingly it has been cancelled, as shown on the replacement sheet attached hereto.

The drawings also were objected to as including reference numeral 20, which was not mentioned in the written description. The specification has been amended to refer to this reference numeral as being the connection between the analysis unit 12 and the ventilator system 18.

The Examiner required insertion in the specification of a reference to the priority application, but Applicants respectfully decline to do so because the Examiner has no statutory authority to require such an inclusion. The relevant United States Patent and Trademark Office rules require only that information relating to parent applications and provisional applications be designated in the text of the specification itself. There is no requirement to do so for foreign priority information, and the undersigned representative of the Applicants has filed thousands of priority applications with the priority information being presented, as required, only in the Declaration and the formal papers accompanying filing of the application.

A number of typographical errors also were noted in the specification, all of which have been corrected. The Examiner's identification of these typographical errors is appreciated.

Typographical errors in claims 20, 28, 32 and 33 also were noted, which have been corrected.

Informalities under 35 U.S.C. §112, second paragraph also were noted in claims 27-31 and 33-37, which have also been corrected.

Claims 20, 26 and 32 were rejected under 35 U.S.C. §102(e) as being anticipated by Sinderby et al. Claims 21, 23, 27, 29, 33 and 35 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sinderby et al.

Claims 22, 24 and 25 were stated to be allowable if rewritten in independent form, and claims 28, 30, 31, 34, 36 and 37 were stated to be allowable if rewritten in independent form as well as to overcome the rejection under §112, second paragraph.

The above rejections are respectfully traversed, and therefore the claims containing allowable subject matter have been retained in dependent form at this time.

The above rejections based on Sinderby et al. reference are respectfully traversed for the following reasons.

In the method, device and computer-readable medium disclosed and claimed in the present application, signal are acquired from the diaphragm of a respiring patient in the form of raw signals respectively in a number of signal channels. In each of the channels, the signal-to-noise ratio of the raw signal therein is automatically determined. Based on this determined signal-to-noise ratio in each channel, a weighting factor for that channel is automatically determined. The respective raw signals from the channels are then weighted by the aforementioned respective weighting factors that have been determined for the respective channels.

The weighted raw signals are then added to obtain a sum signal that represents the total EMG signal in the raw signals.

In the Sinderby et al. reference, signals are also obtained using an esophageal catheter, and the signals from the respective electrodes are weighted so as to correct for cancellation and distance damping effects. The weighting function that is disclosed in the Sinderby et al. reference is specifically designed to achieve correction for the relative location of the electrically active region of the muscle and the electrodes from which the signal originates, the distance between the center of the electrically active region and the electrodes, the size of the electrically active region, and the inter-electrode distance. This is explicitly stated at column 2, lines 25-30 of the Sinderby et al. reference.

As noted above, by contrast, the weighting functions in accordance with the present invention are determined from the signal-to-noise ratio, which is detected for each of the channels. Each channel, therefore, has an individually detected signal-to-noise ratio associated therewith. The fact that the different channels may have different signal-to-noise ratios associated therewith was not appreciated in the Sinderby et al. reference, at least there is no discussion of this factor therein. By contrast, the Sinderby et al. reference teaches away from such a recognition because, as indicated in Figure 4 (which was specifically relied upon by the Examiner), the noise, including the EKG (ECG) signal, is filtered out before the weighting factors are applied. Therefore, a person of ordinary skill reading the Sinderby et al. disclosure is clearly informed that there would be no need to undertake a further procedure in order to eliminate noise, since the noise has already been eliminated by using conventional filtering techniques. As noted above,

the purpose of the weighting disclosed in the Sinderby et al. reference is correct for cancellation effects and distance-damping effects, as explained at column 2, lines 10-15 and column 8, lines 4-8.

The weighting that takes place in the Sinderby et al. reference is done exclusively in steps that *follow* step 401, particular in 405. No weighting takes place in step 401 itself, which makes use of conventional filtering.

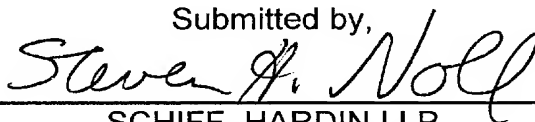
Therefore, the Sinderby et al. reference does not disclose the subject matter of any of independent claims 20, 26 or 32, and thus does not anticipate any of those claims.

The above arguments are also applicable to the obviousness rejection under 35 U.S.C. §103(a) of claims 21, 23, 27, 29, 33 and 35, based on Sinderby et al. As noted above, the Sinderby et al. reference teaches away from the subject matter of the independent claims of the present application, from which each of the aforementioned dependent claims depends. There is no teaching or suggestion in the Sinderby et al. reference that anything other than the aforementioned conventional filtering for eliminating noise is necessary, and in particular there is no teaching or suggestion in the Sinderby et al. reference to make use of a weighting function for eliminating noise, as disclosed and claimed in the present application, and as embodied in the independent claims from which the rejected dependent claims depend. Even though making use of a weighting function for other purposes, the inventors of the Sinderby et al. reference did not realize that a weighting function could be used for noise elimination, and instead Sinderby et al. provide no teaching for noise elimination other than conventional filtering.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,



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